surface for receiving the defining lines may be given to every one of the new metres.

The apparatus for cutting the lines is connected with the new longitudinal comparing apparatus, carrying a microscope with its micrometer. The microscope is 0·8 m. in length and magnifies more than 200 times; and the whole apparatus is placed in the cold chamber, which has been constructed at the Conservatoire des Arts et Métiers, and can be maintained constant at the normal temperature of 0° C. The polishing of the bars, as well as the cutting of the defining lines, the position of which must necessarily be the result of the most precise comparisons with the primary standard metre, are both entrusted to M. Tresca and his son, M. Gustave Tresca.

The lines are to be cut with a diamond point. Each transverse defining line will be crossed at right angles by two longitudinal lines 0·1 mm. apart, and the portion of the transverse line so intercepted between the two lines will define the length of the metre. The width of these lines will probably be about 0·002, or at most 0·003 mm., or 3 microns (μ). This will be about one-fourth of the thickness of the defining lines of our standard yards, which are cut with a steel knife upon the polished surface of a gold stud, and are viewed through microscopes magnifying about sixty times.

Great progress has been made in the construction of the series of new thermometers, two of which are to accompany each international standard metre. These thermometers are being constructed by M. Baudin. Their length is 0·45 m., and their external diameter 5 mm. The bulbs have the same external diameter, and the two thermometers can thus be placed in the groove of the X metre bar for determining the temperature of its measuring axis during comparisons under the microscopes. The scale of the thermometers ranges from − 5 to + 50° C., and each degree is subdivided into tenths. Every 1° corresponds with a length of about 7 mm. Four standard thermometers have been constructed for the purpose of verifying the new metre thermometers. They have an arbitrary scale from 0° to 100° C., graduated in half-millimetres by hydrofluoric acid on the glass tubes, and the value of the several graduations has been accurately determined by calibration. The length of these standard thermometers somewhat exceeds 0·50 m.

The construction of the new international kilogrammes and of the standard *mètres-à-bouts* will be deferred until the completion of the number of *mètres-à-traits* required. Meanwhile, several balances of the greatest precision have been obtained for the weighings, some of which are fitted with mirrors for observing the extent of the oscillations through a telescope by means of a vertical graduated scale fixed to the telescope and reflected in the mirror, according to the principle adopted by Gauss for observing variations of the magnetic needle.

For ascertaining the atmospheric pressure during the weighings, the standard barometer of the Conservatoire des Arts et Métiers, constructed by Fastre, is proposed to be used, by which the height of the mercury can be read to 0·01 mm. An ingenious apparatus has been constructed by M. Mendeleef, which shows the slightest variation of pressure during the process of weighing, by means of a small U-tube containing oil of petroleum. One end of this tube is closed and contains a certain volume of dry air maintained at a constant temperature, whilst the other end is open to the air. The instrument being accurately adjusted by means of a mercurial plunger connected with the bottom of the U-tube, so that the petroleum is exactly on a level on the two branches of the tube, it is found to be so extremely sensible that the slightest variation of atmospheric pressure is shown by an alteration of the level, and the amount of this alteration can be measured with the greatest precision.

It is expected that the whole series of new *mètres-à-traits* will be completed by the French Section and ready to be handed over to the Comité Permanent by October 1875, and that the construction of the new kilogrammes and *mètres-à-bouts* will also be far advanced by that date.

During their late meeting, the question of the convocation of a Diplomatic Conference at Paris with the view of providing the requisite means for enabling the committee to execute all the definite comparisons of the new metric standards, and for securing the due preservation of the new international metric prototypes and regulating their use for future comparisons, was further considered by the Committee. In pursuance of their resolution of last year upon this subject, the requisite communications were made by the French Government to the Governments of the several countries interested, and the Committee have now passed a resolution that considering the numbers of Governments who have agreed to take part in such conference, the French Government be requested to convoke it with as little delay as possible. Information has been received of the willingness of the French Government to accede to the request, and the Conference will probably be held in the spring of next year. H. W. CHISHOLM

NOTES

It is with the greatest pleasure and with something like a sense of relief that we are able at last to announce definitely that at a Cabinet Council held last Saturday it was decided that there should be an Arctic Expedition, at the expense of Government, to sail next spring. The welcome intelligence was thus announced by Mr. Disraeli to Sir Henry Rawlinson:—"Her Majesty's Government have had under consideration the representations made by you on behalf of the Council of the Royal Geographical Society, the Council of the Royal Society, the British Association, and other eminent scientific bodies, in favour of a renewed expedition, under conduct of Government, to explore the region of the North Pole, and I have the honour to inform you that, having carefully weighed the reasons set forth in support of such an expedition, the scientific advantages to be derived from it, its chances of success, as well as the importance of encouraging that spirit of maritime enterprise which has ever distinguished the English people, her Majesty's Government have determined to lose no time in organising a suitable expedition for the purposes in view." Steps have, we believe, been already taken to carry into effect this resolution, which reflects so much credit on her Majesty's Government. Admiral M'Clintock left for Dundee on Tuesday with an engineer and shipwright, to buy two steam whalers, which will be fitted out under the tried explorer's superintendence at Portsmouth. Capt. A. H. Markham, who went to Baffin's Bay last year, will probably occupy an important post in the expedition, the route of which will, of course, be Smith's Sound. Now that the thing has been decided on, there is no doubt that it will be thoroughly well done; and now that Englishmen have once more got the chance, we may expect something like real work, if, indeed, they do not take the last step in the solution of the Arctic mystery.

We take the following from the *Times*:—The medals in the gift of the Royal Society for the present year have been awarded by the Council as follows, and will be presented at the anniversary meeting on the 30th inst.:—The Copley Medal to Prof. Louis Pasteur, of the Academy of Science, Paris, For. Mem. R. S., for his researches on Fermentation and on Pebrine. The Rumford Medal to Mr. J. Norman Lockyer, F.R.S., for his spectroscopic researches on the sun and on the chemical elements. A Royal Medal to Prof. William Crawford Williamson, F.R.S., of Owens College, Manchester, for his contributions to zoology and palæontology, and especially for his investigations into the structure of the fossil plants of the coal-measures; and a Royal Medal to Mr. Henry Clifton Sorby, F.R.S., for his researches on slaty cleavage and on the minute structure of minerals and rocks, for the construction of the micro-spectroscope, and for his researches on colouring matters.

WE are very glad to be able to announce that Prof. Maskelyne's lectures on Crystallography to the Chemical Society are likely to be well attended. The first lecture will be given on Monday evening next, at 8.30, at Burlington House.

LAST week some engineers visited the National Library, Paris, on behalf of the Japanese Government, to take measurements for the purpose of building a large public library in Japan on the same plan. The magazine and reading-rooms of Paris have, with some improvements, been built on the system of the British Museum.

THE report of the Potato Disease Committee of the Royal Agricultural Society has been recently published. It will be recollected that three years ago Earl Cathcart offered a prize of 100*l.* for essays on the prevention of the disease. Although no fresh practical information was elicited, and it may perhaps be said no direct good came from this well-meant offer, the Society took the subject up and offered prizes for potatoes reputed to be proof against disease. Two prizes were offered for the commencement of this year, for potatoes of varieties already known, and two are to be awarded five years hence for varieties that may be produced by cultivation before that period. Six different varieties were sent in, 1 ton (twenty bags of 1 cwt.) of each. The Society arranged to have these practically tested. Twelve stations in England, four in Scotland, and four in Ireland were selected, and 1 cwt. of each variety sent for planting, of these so-called disease-proof potatoes. During the summer the botanic referee of the Society visited all the localities, and in all cases disease was found. Much valuable information is likely to arise from the statistics that have been collected, for although it seems that no indication is given of how the disease can be prevented, yet under certain conditions, principally influenced by moisture, its effect is but small. Prof. de Bary has worked out the scientific questions that occur as to the origin of the disease. It is owing to a fungus (*Peronospora infestans*), which attacks the leaves first, and after absorbing the nutriment of them, utilises the petiole, and thus reaches the tubes. A further report of the Committee, based on the statistics sent in, is shortly to be expected.

WE greatly regret to announce the death of Mrs. Hooker, the wife of the Director of the Royal Gardens, Kew, and President of the Royal Society, which took place on Friday, Nov. 13, very suddenly. She was the translator of Le Maout and Decaisne's " Traité général de Botanique. She will be missed by a large circle of scientific friends.

THE death of Dr. Archibald Campbell will be regarded as a severe loss by his colleagues in scientific societies and by many of the Indian public. He was sixty-nine years of age, and till lately appeared hale and hearty. As Superintendent of Darjeeling, he became a leading authority of reference on the natural history, geography, and ethnography of Thibet, Nepaul, Sikkim, and Bhootan. He was distinguished as an administrator, and under his government and auspices Darjeeling has risen from an obscure sanitarium for invalid soldiers to be a settlement of some consideration. He was the author of several memoirs and notes.

WE have to record the death, on Monday last, in his fifty-sixth year, of Dr. Edward Smith, F.R.S., Assistant Medical Officer, for Poor-law purposes, to the Local Government Board. Dr. Smith's excellent observations on quantitative physiological cyclical phenomena, many of which were conducted on himself, are too well known to require special mention; they indicate an amount of energy and willingness to experience personal inconvenience for the sake of his favourite subject which is very rarely to be met with. His observations on dietaries, especially with regard to the Manchester cotton famine, are also of considerable importance.

WE hear that a new method has been proposed for crossing the Channel; this is to construct an artificial isthmus between the French and English sides, leaving a very small space in the centre for the passage of ships. The expense would not be much larger than that of boring a tunnel, and the advantages would in some respects be greater.

THE International Congress of Orientalists has been the means of originating in Paris a new society under the title of Société d'Études, Japonaises, Chinoises, Tartares, and Indo-chinoises. The number of members already amounts to sixty. At a recent meeting of the Society, M. Bourset exhibited a game for teaching children in a few hours the elements of which Chinese letters are made—*omne tulit punctum qui miscuit utile dulci.* M. Bourset has also shown another invention for diminishing the number of letters which must be cut, and therefore of diminishing the cost of printing Chinese works.

M. LEVERRIER is constructing, in the recently annexed garden of his observatory, a basis for comparing accurately, by superposition, standard measures of length with the metre. The first comparison will be made between the Archives metre and the celebrated Boscowitz rule, which was used more than a century ago for determining the length of two degrees in the Papal States.

IN a paper read before the Paris Société d'Acclimatation, Dr. Turrel suggests that the rapid spread of the *Phylloxera vastatrix* in France may be due to the scarcity of small birds in that country. Forty years ago, he says, linnets, tits, &c., were numerous in Provence, and in the autumn they could be seen posted on the vine branches, carrying on a vigorous search after the insects, and larvæ and eggs of insects, concealed in the cracks of the stem and leaves of the plant. Since the commencement of the present century, however, it is easy to perceive that the destruction of small birds has been carried on more and more generally; and that, concurrently with this war of extermination against the feathered tribes, the numbers of destructive insects have increased at an alarming rate. Dr. Turrel thinks that, though it cannot be absolutely maintained that the oidium and the Phylloxera, the two latest forms of vine disease (the one a vegetable, the other an insect parasite), owe their frightful extension to the scarcity of small birds, yet it is unquestionable that a plant like the vine, weakened by the attacks of insects, is less in a condition to withstand the ravages of parasites; and that, deprived of its feathered protectors and left to the successive and unchecked onslaught of the vine grub and other normal enemies, it has been predisposed to succumb before the ravages of its new enemies. The obvious moral is that the French are themselves partly to blame for their indiscretion in killing the useful small birds.

THE commotion created in the Paris School of Medicine by the false rumour spread by the *Figaro* has been beyond bounds; not only was M. Wurtz, the Dean, cheered, but M. Chauffard, one of the professors belonging to the clerical party, was hooted, and unable to deliver his lecture. The disorder having been renewed in spite of all precautions taken by M. Wurtz, the School of Medicine has been closed for a month. If students again exhibit a riotous spirit, the ringleaders will be prosecuted before a Council of War; which is a lawful proceeding, Paris being placed under a state of siege.

STROMBOLI is reported to have recently shown symptoms of revived action.

THE next Triennial Prize of 300*l*., under the will of the late Sir Astley P. Cooper, Bart., will be awarded to the author of the best essay or treatise on "The Anatomy, Physiology, and Pathology of the Sympathetic Nervous System."

WE learn from *Hansa* of the 15th inst. that the following amounts have been included in the estimates for 1875, presented to the Imperial German Parliament for the service of the "Deutsche Seewarte":—

A.—Salaries and Remunerations.	
1. Central Station	39,000 marks
2. Branch Stations	11,000 ,,
B.—Contingent Expenses.	
1. Central Station	20,000 ,,
2. Branch Stations	4,800 ,,
Total	74,800 marks

which, at the rate of twenty marks to the sovereign, amounts to 3,700*l*. Two new departments are to be added to that established at Hamburg for Marine Meteorology, viz., for Storm-warnings and Magnetism.

A HONG KONG telegram of the 16th inst. states that the *Challenger* had arrived there from Australia.

WE hear that a Horticultural Club is about to be formed in London, and the preliminary steps that have been taken promise well.

THE last number of the *Gardener's Chronicle* states that a specimen of *Aralia sieboldi* at Kew is now in bloom, and that a new garden plant, *Raphidophora lancifolia*, is now in cultivation in this country.

A SLIGHT shock of earthquake was felt in Carnarvonshire and Anglesea on Sunday morning.

FROM a private letter dated Mauritius, Oct. 15, we learn that Lord Lindsay had not yet arrived at that island, that the Germans were expected on the 25th, that the Dutch were at their post at Bourbon, and the English the same at Rodriguez.

THE Earl of Derby has been elected by the Edinburgh students as their Lord Rector, and Mr. Disraeli has been re-elected by the *ingenui adolescentes* of Glasgow University.

EVERY term at Dulwich College a course of scientific evening lectures is given, open to the students and their friends. This term, for the first time, the applications for tickets have exceeded the accommodation of the lecture theatre. The present course is on Geology, by Prof. Harry G. Seeley, the titles of the lectures being, "The Origin and Internal Structure of the Earth," "The Origin and Succession of the Strata," "The Succession of Life on the Earth," and "The Influence of Geological Phenomena on Men and Animals."

THE Committee of Directors of the Crystal Palace Company's School of Art, Science, and Literature have made arrangements for the delivery of successive short series of lectures on special subjects by gentlemen of eminence in art, science, and literature. These lectures will be purely educational in character, and, as far as possible, complete in themselves, but will not in any way supplant the permanent private classes, to which they are designed to be accessory. They are intended to stimulate independent thought, and to lead the student to a conception of some of the ulterior aims of the studies she pursues. They will be delivered in the largest class-room of the school, generally on Fridays, in the afternoon; and the most moderate fee that is possible in each case will be fixed. Ladies only will be admitted. The first course will be of six lectures on "The Interpretation of Nature as it relates to Man and his Education," by the Rev. Chas. Pritchard, M.A., F.R.S., Savilian Professor of Astronomy in the University of Oxford. Fridays—November 13, 20, 27; December 4, 11, 18; to commence each day at half-past three.

AT Emmanuel College, Cambridge, there will be an examination for open scholarships in natural science, commencing the 6th of April, 1875. There is no limit as to age, but all candidates will have to satisfy the examiners that they possess such a knowledge of mathematics and classics as will enable them to pass the Previous Examination. The subjects of examination are botany, chemistry, chemical physics, geology and mineralogy, zoology, comparative anatomy, and physiology. Candidates must send their names, with copy of register of birth and a certificate of good conduct from some M.A. of the University, to the tutor of Emmanuel, on or before March 31. A candidate for a scholarship may also be eligible without further examination for a scholarship at Christ's or Sidney Colleges, in default of properly qualified candidates at those colleges.

A JOINT examination will be held at Clare College and Gonville and Caius College, Cambridge, on Tuesday, March 16, 1875, and three following days, when two scholarships for natural sciences will be offered for competition to students intending to commence residence in October 1875, each of the value of 60*l*. per annum, tenable for two years, but subject to extension or exchange for scholarships of longer tenure. Candidates are required to send their names, with certificates of age and testimonials of good conduct, to one or other of the respective tutors, the Rev. N. M. Ferrers, tutor of Caius, or the Rev. W. Raynes, tutor of Clare, stating at which college they prefer to be elected; but if not elected at such college it will be understood that they are candidates also at the other college. Further particulars may be obtained on application to the tutor of Clare or the tutor of Caius.

THERE was a meeting of the members of the Cambridge University Senate on the 12th inst., to discuss the report issued last June of the Board of Natural Science Studies, recommending alterations in the examination for the Natural Science Tripos. Its main recommendations consist of a division of the Tripos. The recommendations met with the unanimous approval of the Senate.

THE following appears in the *Times*:—Where the excavations for laying the water-pipes are being made near Rideau Hall, on the grounds of the Governor-General of Canada, the workmen have made a strange geological discovery. It is a stratum of fossil rock several feet thick, containing the most accurate and beautiful petrified winged insects. There are some like butterflies, with the delicate fibre of the wings in a most perfect state of preservation. Several persons in New Edinburgh have secured excellent specimens.

ON Thursday, Nov. 5, the members of the Geological Society Club dined together at the Pall Mall Restaurant, to celebrate the fiftieth year of the meetings of the Club. There was a good gathering of the members, and among them were the Earl of Enniskillen, Sir Charles Lyell, Profs. Huxley and Ramsay, Mr. Godwin Austen, Mr. Prestwich, Capt. Galton, &c.; some of the past retired members were also present. Letters apologising for absence were read from Mr. Jesse Watts Russell, an original member, the Duke of Devonshire, Earl of Selkirk, Lord Overstone, Mr. Darwin, Sir C. Fox Bunbury, and others. The president of the Geological Society, Mr. J. Evans, took the chair, and the vice-chair was occupied by Mr. Mylne, the treasurer of the Club; some toasts were given, and Sir Charles Lyell, one of the only two original members now living, responding in the name of the Club, took occasion to remark that great as had often been the differences of opinion in the Geological Society from the time of Buckland, Conybeare, De la

Beche, Fitton, Sedgwick, and Murchison, down to the present day, there had always been perfect harmony in the Club. He further congratulated the younger men not only on the zeal and talent displayed among them, but on the progress of opinion and freedom of expression gained by scientific thought in the course of half a century.

ICEBERGS are reported to have been met with in the Bay of Biscay during very rough weather, by the *Mongolia*, which arrived at Southampton on Monday last. Icebergs have been met with as far south, but generally well out in the Atlantic Ocean.

WE invite the attention of all interested in technical education to the very excellent examination scheme of the Society of Arts, intended to promote such education among the working men of the country. No doubt a prospectus of the scheme will be forwarded to anyone writing for it to the Society's offices in London.

IN one of its last sittings the Municipal Council of Paris will have to vote on a proposition, supported by forty of its members, asking the National Assembly to establish a system of public instruction, gratuitous, obligatory, and secular. The motion will probably be agreed to by the Municipal Council, but rejected altogether by the National Assembly.

THE additions to the Zoological Society's Gardens during the past week include eighteen Lancelets (*Amphioxus lanceolatus*) from the Mediterranean Sea, presented by the Director of the oological Station at Naples; a Pine Marten (*Martes abietum*), British, presented by Mr. J. Francis; a Red-shouldered Starling (*Agelacus phoeniceus*) from N. America, presented by Mrs. Boxwell); two Aztec Conures (*Conurus aztec*) from S. America, purchased.

SOCIETIES AND ACADEMIES

LONDON

Linnean Society, Nov. 5.—G. J. Allman, M.D., president, in the chair.—W. H. Archer, R. A. Pryor, and W. W. Wilson were elected Fellows. Mr. J. E. Howard read a paper on the appearances of *Lobelia dortmanna* on the floating island in Derwentwater.—Mr. J. A. Jackson exhibited leaves of Liquidambar and Perottia, exhibiting remarkably beautiful autumn tints.—Mr. J. G. Baker read a paper on Asparageæ, a section of Liliaceæ. The author commenced by discussing the limits of the natural order Liliaceæ. He proposed to regard it as consisting of three great series, and in addition several abnormal tribes, all of which have some claim to be regarded as distinct orders. The three series are:—Liliaceæ proper, characterised by capsular fruit with loculicidal dehiscence, united styles, and introrse anthers (1200 to 1300 species); Colchicaceæ, marked by capsular fruit with septicidal dehiscence, free styles, and extrorse anthers (130 species); and Asparagaceæ, marked by baccate fruit (260 species). The aberrant tribes are Liriopeæ (Ophiopogoneæ), Gillesieæ, Conantheræ, Stemoneæ (Roxburghiaceæ, Lindley), and Scoliopeæ. All these have anatropous ovules: and he advocated the separating of Smilax from Asparageæ, with which it has been commonly joined by recent writers, and the retention of it as the type of a separate order marked by orthotropous ovules, and by its habit of growth, woody often prickly stems, minute polygamous umbellate flowers, stipular tendrils, and decidedly stalked exogen-like leaves with venules reticulated between the palmate main nerves. The tribes and genera of Asparageæ, which are as follows, to a considerable extent represent the non-bulbous tribes of the two capsular series:—(1) *Dracæneæ:* Shrubs with proper leaves, hermaphrodite flowers, and introrse anthers; genera, Dracæna, Toetsea (= Cordyline, but used on ground of priority), and Colmia; represents Yuccoideæ in Euliliaceæ. (2) *Sanseviereæ:* Undershrubs with coriaceo-carnose leaves, hermaphrodite flowers, and extrorse anthers; genera, Sanseviera, Lomatophyllum; represents closely Aloineæ in Euliliaceæ. (3) *Convallarieæ:* Herbs with proper leaves, gamophyllous hermaphrodite flowers, and introrse anthers; genera, Reineckia, Convallaria, Polygonatum, Hylonome; represents Hemerocallideæ in Euliliaceæ. (4) *Tovarieæ:* Herbs with proper leaves, polyphyllous hermaphrodite flowers, and introrse anthers, dehiscing longitudinally; genera, Theropogon, Speirantha (new genus founded on *Albrica gardeni*, Hook.), Maianthemum, Tovaria (an earlier name for Smilacina), Drymophila, Geitonoplesium, and Eustrephus. (5) *Dianelleæ:* Herbs with proper leaves, hermaphrodite flowers, and anthers dehiscing by terminal pores; genera, Dianella, Luzuriaga. (6) *Aspidistreæ:* Acaulescent herbs, with fleshy, often eight-lobed perianths, hermaphrodite flowers, introrse anthers with longitudinal dehiscence, and large peltate complicated stigmas; genera, Aspidistra, Plectogyne, Tupistra, Campylandra (new genus from East Himalyas), Gonioscypha (new genus from Bhotan), Rohdea. (7) *Streptopeæ:* Herbs with proper leaves, hermaphrodite flowers, and extrorse anthers, with longitudinal dehiscence; genera, Medeola, Clintonea, Prosartes, Streptopus, Callixene. Kruhsea; represents Colchicaceæ in the capsular series. (8) *Asparageæ:* Herbs or shrubs with leaves degraded down into spurred bract-like membranes, and their place filled by an abundant development of branches in their axils; flowers often polygamous, with introrse anthers dehiscing longitudinally; genera, Asparagus (including Asparagopsis and Myrsiphyllum), Ruscus, Semele, and Danae; the most specialised type of the baccate series, not represented by any tribe in the two capsular sets. The most noticeable points of structure in the series are that, in the first place, such a thing as a bulbous rootstock or a narrow fleshy lorate leaf of the hyacinth type does not occur in Asparageæ at all. As regards distribution, it is noticeable that whilst the bulbous tribes of Liliaceæ possess a distinctly-marked geographical individuality, this does not hold good of the non-bulbous half of the natural order; and that the 260 species are scattered all over the world, and not concentrated in any particular geographical area. The most curious structural peculiarity in the group is the degradation of the leaf-organ which marks the tribe Asparageæ. The leaves have an alternate arrangement, and are invariably developed in the form of a minute membranous scale. This has a spur at the base, which in many of the shrubby species of Asparagus is developed out into a woody spine, as firm in texture as the indurated branchlet of the sloe or hawthorn. The function of the leaf is fulfilled by branches, which are developed singly or in fascicles in the axils of these bract-like proper leaves. Sometimes these branches are needle-like (cladodia), without any flattening, as in the common garden asparagus; and sometimes, as in Myrsiphyllum and Ruscus, they assume all the appearance of proper leaves (phyllocladia). The flowers in the 100 species of the genus Asparagus are remarkably uniform, and it is principally upon characters furnished by the shape and arrangement of these barren branches that the species are marked. The stigma of the Aspidistreæ is a very curious and complicated organ. It is a plate with eight troughs radiating from a raised central umbilicus, separated from one another by raised walls, and it closes in the tube of the perianth, in which the anthers are placed so thoroughly that it is difficult to tell how fertilisation is effected; but upon turning it upside down four minute holes may be seen, through which it would be possible for a very small insect to creep. The paper was illustrated by plates of the three new genera, and one to show the structure of the stigma of these Aspidistreæ; and a large number of new species, especially in the genus Asparagus, were described. In the discussion which followed, Dr. Hooker, Dr. Masters, and others expressed their sense of the great value of Mr. Baker's labours.

Geological Society, Nov. 4.—John Evans, F.R.S., president, in the chair.—The following communication was read:—Notes on the Comparative Microscopic Rock-structure of some Ancient and Modern Volcanic Rocks, by J. Clifton Ward. The author stated at the outset that his object was to compare the microscopic rock-structure of several groups of volcanic rocks, and in so doing to gain light, if possible, upon the original structure of some of the oldest members of that series. The first part of the paper comprised an abstract of what had been previously done in this subject. The second part gave details of the microscopic structure of some few modern lavas, such as the Solfatara Trachyte, the Vesuvian lava-flows of 1631 and 1794, and a lava of the Alban Mount, near Rome. In the trachyte of the Solfatara acicular crystals of felspar show a well-marked flow around the larger and first-formed crystals. In the Vesuvian and Albanian lavas leucite seems, in part at any rate, to take the place of the felspar of other lavas; and the majority of the leucite crystals seem to be somewhat imperfectly formed, as is the case with the small felspar prisms of the Solfatara rock